# Army Guide monthly

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Future Technologies

## Saft Awarded Contract for Next Generation Hybrid-Electric Military Vehicles

The US Army Tank-Automotive Research Development Engineering Command (TARDEC) has selected Saft, a world specialist in the design and manufacture of high-tech batteries, to enhance the efficiency of military vehicle operations. The $1.2 million contract will focus on the design and demonstration of Saft's high-power lithium-ion (Li-ion) batteries, to address the requirements for next-generation hybrid electric military-vehicles.

Saft's high-power batteries will provide TARDEC's vehicles with enhanced performance while significantly reducing vehicle costs. The US Army TARDEC is responsible for providing soldiers with unrivaled battlefield capabilities, including mobility, lethality and survivability. Headquartered in Warren, Michigan, TARDEC ensures that US soldiers are prepared for combat with the most advanced technology available.

Saft will work with TARDEC to leverage the Army's Manufacturing Technology Program (ManTech), which focuses on the development of low-risk, affordable technologies for military systems. Through this collaborative effort, Saft and TARDEC will develop ways to reduce size and improve performance of Li-ion technology for hybrid electric vehicles.

"We are looking forward to extending our partnership with the US Army TARDEC," said Thomas Alcide, Saft specialty battery group general manager. "We are pleased that TARDEC distinguishes Saft as an industry leader in technology and continually relies on us for the development of superior products."

Saft's high-power Li-ion batteries are currently being used to power several of the military's hybrid electric armored demonstrator vehicles, including BAE Systems (United Defense's) Non Line of Sight Canon (NLOS-C), Carnegie Mellon national robotics engineering center's crusher robotic vehicle, General Dynamic Land Systems' Reconnaissance Surveillance Targeting Vehicle (RSTV), and TACOM's High-Mobility Multipurpose Wheeled Vehicle (HMMWV).

Defence Industry

## JLG Awarded $23.7 Million Reset Contract by U.S. Army

JLG Industries, Inc. announced that the Company has been awarded a $23.7 million contract from the Department of the Army for refurbishment of All-Terrain Lifter Army System ("ATLAS") vehicles and SkyTrak® Model 6000M vehicles, the predecessor to the ATLAS product. JLG has performed refurbishment work for the Army since August 2004, generating approximately $51 million of revenue since that time. This contract is a continuation of that work and will span approximately 12 months.

This new contract builds upon the partnership between the U.S. Army and JLG and reflects the trust and confidence the Army have in the company and their programs. JLG has refurbished more than 450 vehicles for the U.S. Army that are used in places like Iraq and Afghanistan. In fact, SkyTrak(r) Model 6000M vehicles were used during Operation Desert Storm. The fact that these vehicles are still in use today is a tribute to the effectiveness of the Army's reset program and to the quality of work performed by JLG. The company are proud to support the U.S. military and look forward to continuing this relationship in the years ahead.

Defence Industry

## QinetiQ signs five-year X-Net production contract with US military

QinetiQ has secured a five-year Indefinite Duration, Indefinite Quantity (IDIQ) contract with the US Military, for the supply of QinetiQ's Vehicle Lightweight Arresting Device (VLAD), the US military designation for the X-Net(r) system.

The base contract has the potential to supply up to 2,000 X-Net(r) units per year, plus training variants. The first firm orders for deployable and training nets, worth in the order of $9.2 million, have already been placed and other X-Net(r) based prototype solutions may transition into the IDIQ in the near future. These new developments should help improve operator safety from the hazards caused by Vehicle Borne Improvised Explosive Devices (VBIEDs).

QinetiQ's X-Net(r) is a man-portable spike and net system that when deployed in a vehicle's path, will bring a range of vehicles to a complete and safe standstill, typically within 75 metres, irrespective of whether the vehicle is equipped with either standard or run flat tyres.

Vehicle 'arresting' has become a key operational capability for military peacekeeping operations. With the ever present asymmetric threat, QinetiQ's X-Net(r) system is already being used to establish vehicle checkpoints to protect against suspect vehicles and suicide bombers.

Non-lethal equipment such as X-Net(r) provides an intermediate solution between the soldiers 'shouting' and 'shooting', particularly with the increased threat from vehicle borne explosive devices. This contracting arrangement will be a low-burden contracting vehicle and importantly it will enable several future X-Net(r) products to rapidly get into the hands of the user.

Of equal importance is the fact that X-Net(r) stops the vehicle without harming its occupants or damaging the vehicle. The driver and passengers remain completely unharmed and any attempts to drive back and forth are thwarted by the net.

X-Net(r) is a British invention that was originally developed for the UK military and is now sold worldwide to police and security forces. Traditional roadside arresting systems typically use hollow spikes, but have limitations in that they only puncture the vehicles tyres and do not rapidly arrest the vehicle.

Defence Industry

## Armor Holdings. Receives $649 Million Order for Additional FMTV Trucks

Armor Holdings, Inc., a leading manufacturer and distributor of military vehicles, vehicle armor systems and life safety and survivability systems serving military, law enforcement, homeland security and commercial markets, announced today the receipt of a $649 million order for production of additional Family of Medium Tactical Vehicle (FMTV) trucks from the U.S. Army Tank-automotive and Armaments Command (TACOM).

The Company advised that the award is made under the existing multi-year FMTV production contract, with work to be performed in 2007 and 2008 by the Aerospace & Defense Group at its facilities located in Sealy, Texas.

This award represents continued increases in production rates for significant quantities of FMTV trucks, which are vital to Armed Forces' capability. The company are extremely proud that the U.S. Army continues to demonstrate confidence in Armor Holdings' ability to respond to the increasing demands of today's defense environment and look forward to anticipated additional FMTV awards as Armor Holdings increase their production capacity to meet even greater demand.

Defence Industry

## First Lightweight Soldier Power / Fuel Cell Delivered to German Army

The military business unit of SFC Smart Fuel Cell AG, a technology and market leader in fuel-cell based energy-solutions, has reached another major milestone. In an international meeting with military organisations from eight countries, led by the German Federal Army, the first batch of a series of SFC's new portable DMFC power-generation system for soldiers in the field, 'JENNY,' was handed over to defence ministry representatives from Finland, Germany, the Netherlands, Norway, South Africa, Sweden, Switzerland and the United Kingdom.

The lightweight 1.3kg 'JENNY' fuel cell is an advanced version of SFC's FCPS system. It provides a continuous power-output of 25W directly from methanol. 'JENNY' can be connected to any standard military lithium-ion battery.

The system thus combines the proven peak power-performance advantages of batteries with the high-energy density and continuity offered by fuel cells. 'JENNY' can be integrated into the soldier's ensemble or used to power unattended equipment for remote applications, and in both cases it will continuously, silently and reliably supply power to a wide range of carried and unattended electronics and communication equipment. In addition, 'JENNY' enables fast and safe recharging of secondary batteries in the field.

The 'JENNY' fuel-cell system provides immediate mission weight savings of up to 80% over conventional power sources, extending soldier mission times to several days. A 350ml fuel cartridge, for example, provides 350Wh of power and, at a weight of only 360g, replaces two conventional military batteries with a weight of 2kg.

Thanks to the cooperation of the eight military organisations, 'JENNY' has been constructed in a way to satisfy the current range of international military energy-supply standards. Consequently, the system enables true interoperability: troops of participating countries will be able to easily support each other in international missions.

The 'JENNY' DMFC energy-generator system by SFC is an ideal solution to one of the most urgent problems of modern soldiers: a reliable supply of electrical power in the field. With the delivery of these units for field tests, this new technology will reach the actual users - the soldiers in the field - for the first time.

The delivery of this initial series of portable fuel cell systems to eight military organisations marks the first time that a larger number of units will go into intensive military qualification and field tests.

Not only does 'JENNY' enable considerably longer missions thanks to weight savings, but also increased independence from vehicle-borne power sources.

Defence Industry

## New Defence Coating for British Army Vehicles

The British Army's new fleet of Iveco Panther vehicles are being coated with a brand-new paint-system specially developed by Akzo Nobel Aerospace Coatings (ANAC).

The system comprises two ANAC water-based primers - Intergard® 10206 and Intergard® 10207 - plus an Intergard® 10212 water-based finish-coat which is both chemical-agent resistant and infra-red reflective.

The new system is approved to defence standards 80-208 and 00-72, and is currently the only water-based coating in the world that is approved by the latest chemical-agent decontamination-test method (Stanag 4360 issue two). Because it is water-based, the paint also meets strict current guidelines on VOC emissions.

The 12-month project to develop the paint system was carried out by ANAC in collaboration with BAE Land Systems of Newcastle, and Iveco, in Bolzano, Italy, where the first batch of 400 Panther vehicles are being constructed. Coating of the vehicles in NATO green (N285 of the BS 381C colour collection) began in July.

The Iveco Defence division is located in a region of the Italian Alps where environmental concerns are very high, and the products the company uses must therefore

have as low an environmental-impact as possible.

For this reason, the selection of ANAC's water-based Intergard system was made not only for military and application reasons, but also as the result of a long and detailed evaluation of the paint system's components, and scrupulous analysis of the related technical and scientific documentation supplied by ANAC.

The main evaluation of the ANAC coatings system was carried out by Iveco's own laboratory technicians in Bolzano. Laboratory manager and chemical laboratory supervisor are enthusiastic about the Intergard system: It gives excellent general performance, applies smoothly and does not need too high a thickness to achieve the desired result. The finished appearance is also extremely good.

Contracts

## U.S. Marine Corps Orders More Force Protection Vehicles

Continuing strong demand for Force Protection, Inc.'s armored vehicles was highlighted recently as the manufacturer announced another delivery order from the U.S. Marine Corps worth an estimated $69 million for 100 additional Cougar Joint Explosive Ordnance Disposal Rapid Response Vehicles (JERRV).

The order marks the fulfillment of a sole source contract previously announced and awarded to Force Protection on November 9, 2006.

More than 300 Force Protection vehicles are currently in the field, and have an unmatched record for troop safety in the face of improvised explosive devices, land mines and roadside bombs in Iraq and Afghanistan. Popular with explosive ordnance disposal teams and other first response units who credit the vehicles with saving their lives, the vehicles incorporate a V-shaped hull design that deflects the force of blasts away from passengers.

The vehicles have set the standard for blast protection. Thousands of incidents in the global war on terror show that Force Protection's proven blast protection technology saves the lives of US troops on the ground who constantly face explosive threats. This order once again confirms that the investments the company have been making to increase their capacity will prove to be time and money well-spent.

Defence Industry

## Booming Saudi Arms Buying Leads Middle East Arms Market

Saudi Arabia is expected to spend tens of billions of dollars in the coming years revamping its military forces, according most recent Middle East defense market analysis.

According to Middle East analysts, the Saudis are essentially engaged in a whole-scale overhaul of the structure of the regular armed forces, and a major upgrade of the paramilitary National Guard, which is the prime internal security force. From best initial estimates, the Saudis will be spending about $40 billion on these procurements, but the total could go as high as $60 billion.

Signed or pending big ticket programs include Typhoon fighters for the Air Force, helicopters for all of the services, armored vehicles for the National Guard, new frigates for the Navy, and a multibillion-dollar security barrier for the entire length of the border. Notably, the Saudis are spreading the wealth around, with British, French and U.S. suppliers looking to benefit the most from the arms-buying spree. The intent is to prevent the country from becoming dependent on any one supplying nation.

The internal security sector will claim a healthy portion of the Saudi procurements, with orders to modernize the National Guard expected to reach some $5.8 billion. This reinforces a regional trend that began several years ago.

The shift in focus toward security spending reflects growing concerns over the region's burgeoning instability, ranging from the civil war in Iraq to the rise of terrorist attacks in Saudi Arabia, the persistent violence between Israel and the Palestinians, and the growing military power of Iran.

The threat from Iran could spark yet another war in the region, given Iran's development of long-range missiles capable of reaching Israel, and Israel's threat to stage a pre-emptive strike should Iran persist in developing nuclear warheads. It is telling that Persian Gulf nations had contemplated defense spending cutbacks following Saddam Hussein's ouster in 2003, but have since reconsidered.

Given the various security threats, the region is expected to continue to constitute a high-value defense market. Forecast International has raised its forecast figures for this market significantly from last year's. Its projections show regional military spending topping out at $86.5 billion in 2008 and then easing slightly to about $82.9 billion by 2011. Not surprisingly, Saudi defense spending constitutes a sizable portion of the increase in forecast spending. However, Middle East analysts said that "much of the arms buying in the region occurs 'off-the-books,' and there is no way to determine how much of the defense spending falls into this category. The region's governments are notorious for their lack of transparency, and in many cases official numbers should be regarded with skepticism."

Contracts

## DRS Awarded $22 Million Contract by The U.S. Army for Heavy Ammunition Trailers

DRS Technologies, Inc. announced that it has received a $22 million order to build more than 300 M989A1 Heavy Expanded Mobility Ammunition Trailers (HEMATs).

DRS-manufactured HEMATs are being used extensively by Multiple Launch Rocket System (MLRS) battalions deployed to Southwest Asia for Operation Iraqi Freedom.

The order was part of a previously awarded five-year Indefinite Delivery/Indefinite Quantity (IDIQ) contract from the U.S. Army's Tank-Automotive and Armaments Command (TACOM) in Warren, Michigan. The work for this contract is being performed by the company's DRS Sustainment Systems unit in West Plains, Missouri.

The DRS-built HEMAT continues to prove its value as an important part of military transportation operations in Iraq.

The HEMAT is part of the U.S. Army's future force transformation and modularization into combat brigades rather than divisions. The trailer has a heavy industrial payload capacity to transport numerous and extremely heavy MLRS pods, palletized or non-palletized conventional ammunition and fuel bladders, whether on paved, unpaved or cross-country roads.

Contracts

## Oshkosh Truck Acquires JLG Industries to Create $6 Billion Specialty Vehicle Company

Oshkosh Truck Corporation, a leading manufacturer of specialty vehicles and vehicle bodies, announced that it has completed the acquisition of JLG Industries, Inc. (JLG) for $28 per share in an all cash transaction valued at approximately $3.2 billion.

With the addition of JLG's forecasted revenues, Oshkosh Truck now expects to surpass $6 billion in net sales for fiscal 2007.

The Company today affirmed its previous estimates that the Oshkosh stand-alone earnings per share (EPS), without giving effect to the JLG acquisition, is expected to be $3.05 to $3.15 and that the JLG acquisition will be modestly accretive to its stand-alone EPS for the fiscal year ended September 30, 2007. Due to the timing of the JLG acquisition closing during the seasonally slow holiday period and the estimated impact of certain non-cash purchase accounting adjustments, the Company estimates that the JLG acquisition will be approximately $0.15 dilutive to EPS for the first quarter of fiscal 2007. Accordingly, the Company now estimates that EPS for its first quarter of fiscal 2007, including the impact of the JLG acquisition, will be approximately $0.35 to $0.40 per share. The Company expects to provide its sales and EPS estimates for fiscal 2007, including the impact of the JLG acquisition, during the first week of February 2007, when the Company plans to report its earnings for the first quarter of fiscal 2007.

Oshkosh expects to integrate JLG by applying its successful method of cross-functional collaboration. They have eight operational teams, with members from both Oshkosh and JLG, leading the integration initiative and focused on specific near- and long-term objectives. Planning is well underway and we are pleased with initial progress. In addition, the Company is enlisting external consulting resources in select areas to spur velocity and provide expertise in effective integration.

Defence Industry

## BAE Systems and Army Depot Sign Product Support Partnership

BAE Systems and the Tobyhanna Army Depot signed a partnership agreement to better provide the Army with cost-effective weapon systems, support, and rapid product improvements.

The depot provides repair and overhaul services on a variety of aircraft and ground-based weapon systems. The BAE Systems/Tobyhanna Army Depot team will focus on product total life-cycle management, reliability growth, depot maintenance optimization, supply-chain management, obsolescence management, engineering changes, and product improvement.

Through this partnership, the companies will provide American warfighters with the most dependable products available, and the capability to field and support equipment as quickly as possible.

BAE Systems and the Tobyhanna depot have a history of collaborating to enhance the safety and operational readiness of Army aviation assets. One recent example is the development and fielding of desert filter kits for AN/ALQ-144 infrared countermeasures systems equipped aircraft. BAE Systems and Tobyhanna already are teaming to support the rapid fielding and future repair of BAE Systems' Common Missile Warning System (CMWS) electronic components, deployed on aircraft throughout Southwest Asia. CMWS is flying on multiple Army and allied helicopters and Army fixed-wing aircraft and is credited with saving numerous aircraft and crews from man-portable air defense missiles.

The Tobyhanna Army Depot is part of the U.S. Army Communications-Electronics Life Cycle Management Command. The depot in northeastern Pennsylvania is the Department of Defense's largest center for the repair,

overhaul, and fabrication of command, control, communications, computers, intelligence, surveillance, and reconnaissance systems that range from tactical field radios to the ground terminals that support the defense satellite communications network.

Contracts

## German parliament decides to procure 272 BOXER vehicles

Krauss-Maffei Wegmann (KMW) welcomes the decision of the German parliament (Bundestag) in Berlin to procure 272 highly protected BOXER vehicles.

It has set with this decision an especially important procurement milestone towards a European-developed armored transport vehicle involving border-crossing production with the Dutch partner. The Dutch armed forces will procure 200 BOXER vehicles as well.

The positive decision of the German legislature in favour of the Boxer is a clear signal for mission- oriented equipment of modern armed forces and at the same time underlines the firm intent to define and use defense procurement projects from a European perspective and on a border-crossing and multi-national basis.

BOXER

With the BOXER, the Dutch and German armed forces will in future have a vehicle of modular construction, capable of deployment for a variety of demanding missions. It takes just a few minutes to exchange so-called mission modules on a common vehicle chassis for highly protected personnel transport as well as for command, ambulance, maintenance and cargo functions. The BOXER is an optimally protected, highly mobile transport vehicle of high payload capacity and can be deployed reliably even in extreme environments. Its comprehensive protection against mines and ballistic threats is based on the most advanced technologies and guarantees maximum crew survivability. High mobility, stealth design, modern observation equipment, an effective self-defense armament, the smoke grenade launcher as well as the standard NBC protection and environmental control system are further key features enhancing survivability in critical situations. With its consistent modular construction, the BOXER represents an ideal, highly flexible system platform for a variety of different missions. Its high payload capacity, combined with a large, fully protected interior, permits the integration of complex kits and offers future-oriented growth potential. Proven powerpack and suspension components ensure superb off- and on-road mobility in any situation. Rapid availability in out-of-area missions is guaranteed by its airportability on the Airbus A 400M.

ARTEC

The BOXER is a German-Dutch procurement project developed within the program organisation of ARTEC, a consortium consisting of the companies of Krauss-Maffei Wegmann (36%), Rheinmetall Landsysteme (14%) and Stork (50%).

Krauss-Maffei Wegmann

Krauss-Maffei Wegmann GmbH und Co. KG is Europe's market leader for armored wheeled and tracked vehicles. With a workforce of approximately 2,800 and extensive system expertise, KMW as the leading system manufacturer develops, manufactures and supports a product line up ranging from air portable and mine-protected wheeled vehicles (MUNGO, DINGO and BOXER), to reconnaissance, air defense and artillery systems (FENNEK, GEPARD, PzH 2000 and AGM) all the way to heavy battle tanks (LEOPARD 1 and 2) and armored infantry fighting vehicles (PUMA). The armed forces of 29 nations worldwide rely on operational systems supplied by KMW.

Defence Industry

## SAF to Get Refurbished Leopard Tanks

Singapore's refurbished Leopard 2s will replace the AMX-13 SM-1 light tanks currently in service. The Singapore Armed Forces (SAF) will acquire 66 refurbished Leopard 2A4 tanks from the German Federal Ministry of Defence.

Minister for Defence Teo Chee Hean announced this during his visit to Sungei Gedong camp on 11 Dec. The Leopard 2A4 tanks will replace some of the current SAF SM1 tanks, as part of the SAF's transformation into the third-generation fighting force. "The SM1 tanks which we bought 40 years ago and upgraded in the eighties have served us well," said the minister, "but as a platform to go forward to the third-generation SAF, it has some limitations." At 55.15 tons, the Leopard 2A4 tank is more than twice the weight of the SM1 tank, which weighs at 17.2 tons. The Leopard 2A4 also has greater firepower with a 120mm calibre smoothbore gun, equipped with stabilisation and thermal imager. Even more impressive is the horsepower of the Leopard 2A4, which boasts 1500 hp while the SM1 packs 290 hp. Said Mr Teo: "It (the Leopard 2A4) has good mobility, protection, firepower and provides a good baseline for us to further upgrade the tank should we want to move into the next phase for the third-generation SAF Armour." Prior to the purchase, there were several other offers on the table. But the Leopard 2A4 refurbished tanks offered by Germany were the most cost-effective option for the SAF, explained the minister. Although these tanks will replace some of the SM1 tanks, Mr Teo said the latter still served a very good purpose and would be in service for some years to come.

Defence Industry

## Patria Weapon Systems Oy's component manufacturing transfers to Komas Oy

Patria Weapon Systems Oy and Komas Oy have signed a contract concerning transfer of Patria Weapon Systems Oy's component manufacturing in Vammala, Finland to Komas Oy as of 16 December, 2006.

The contract includes selling the operations and machines, renting the facilities as well as co-operation and service agreements. Patria Weapon Systems Oy's 14 employees will be employed by Komas Oy with current terms and conditions.

"Selling the component manufacturing supports our purpose to focus on our core competence area, which is designing, marketing and selling advanced mortar systems", states Mr Jarmo Puputti, President of Patria Weapon Systems Oy.

"With this deal Komas Group further strengthens its machining business in Vammala but also in the entire Group. Additionally our strategic co-operation with Patria expands to include even this technologically demanding field", states Mr Jukka-Pekka Nikula, President of Komas Oy.

Patria is a Defence and Aerospace Group with international operations. Patria's key business areas are armoured wheeled vehicles, mortar systems, helicopters and military aircraft as well as life cycle support and defence electronics systems. Patria de-livers internationally competitive solutions to global markets based on own specialist know-how and partnerships. Patria's owners are the Finnish State and European Aeronautic Defence and Space Company EADS N.V.

Komas is a growing, networked and international systems supplier in mechanical engineering industry offering machining, assembly, hydraulics and surface treatment services. The company has seven facilities in Finland and one in Poland, acquired in August. The Group's yearly turnover is 95 million euros and it employs about 1000 persons.

Defence Industry

## Norwegian Armed Forces exercise contract option for Smiths Detection chemical agent detectors

Watford, UK -- Smiths Detection, part of the global technology business Smiths Group, has been awarded a pound2.2 million contract to supply Lightweight Chemical Detectors (LCD) to the Norwegian Armed Forces.

The deal follows an initial contract for LCDs, valued at pound1.8 million, awarded to Smiths Detection in 2005. It extends the protection of Norway's military personnel against chemical warfare agents.

The Norwegian Defence Logistics Organisation executed the follow-on option after extensive competitive trials. The LCD can detect a wide range of chemical warfare agents including nerve, blister, blood and choking agents.

Smiths Detection, a world-leading provider of x-ray technology and systems that detect and identify chemicals, biological threats and explosives, has developed LCD as a compact, rugged, wearable device designed to provide an additional layer of safety and protection for troops. The latest contract makes Norway the largest user of the LCD, outside the UK.

Stephen Phipson, Group Managing Director of Smiths Detection, said: "This new contract is a testimony to the quality of the product. It had to come through the very tough and thorough testing procedures which have established Norway as one of the world's most respected authorities on NBC protection.

"Our success here is an important indicator to NATO countries of the role of LCD in helping to save the lives of troops."

Smiths Detection has been supplying Norway's Military Forces with chemical detection equipment since 1990 and has additionally supplied LCDs to the country's police and fire services. Josi Tech AS represented Smiths Detection in the Norwegian contract negotiations.

The LCD is a non-radioactive chemical warfare agent point detector that automatically alerts service personnel to the presence of both chemical warfare agents and toxic industrial chemicals, also identifying and quantifying the substances involved. The LCD can be worn by individuals or mounted in various forms of military transportation such as wheeled or tracked vehicles, aircraft and ships.

Term of the day

## Road Wheels

The wheels bearing the weight of a land vehicle onto the ground or its own tracks.

The fitting of tracks to a tracked vehicle calls for a rather different design of road wheel, compared with its wheel-only counterpart. The modern armoured fighting vehicles use a dual wheel design. The other main difference from wheel-only vehicle wheels is the absence of a pneumatic tyre. In the case of the tank, the reason for this stems principally from the role of the vehicle, which exposes it to fire more often than the lightly armoured wheeled armoured fighting vehicles. However, additionally it is found that the size of pneumatic tyre needed to carry the loads involved would be too great to fit into the space available. As a result, solid rubber tyres are used. Even these present a design problem: as tanks get ever heavier and their road speeds increase, the tyres

become liable to overheat. To minimise tyre rolling resistance, the need is for larger diameter wheels. However, in order to optimise soft ground performance, uniform weight distribution is needed, calling for a large number of wheels. The normal compromise is 6 or 7 road wheels per side on tanks, whilst smaller, lighter AFVs use 4 or 5.

Defence Industry

## Rheinmetall to supply Bundeswehr with Wiesel 2 armoured field ambulances

Germany's Federal Agency for Defence Technology and Procurement (BWB) in Koblenz has contracted with Rheinmetall to supply the Bundeswehr with a second lot of Wiesel 13 tracked armoured vehicles configured as field ambulances.

In a separate order, Rheinmetall will also be supplying the Bundeswehr with two Wiesel 2 training vehicles and two training models as well as accompanying logistical materiel for training German maintenance units. Together the two orders are worth around EUR9 million.

Under the terms of the orders, delivery of the vehicles and training equipment is to be largely completed by the end of 2007. These orders ensure stable utilization of the company's Wiesel 2 production capacity in Unterlus and Kiel during the coming year.

This brings the number of Wiesel 2 vehicles procured by the Bundeswehr to over 140. It also consolidates Rheinmetall's role as the Bundeswehr's leading supplier of lightweight tactical vehicles for out-of-area operations.

Defence Industry

## UK Defence Industrial Strategy - One Year on

Defence Minister, Lord Drayson, marked the successful first year of the Defence Industrial Strategy with key UK industrialists at an event in the City of London.

The DIS was launched on 15th December 2005 and represented a major shift in the way that MoD does business. It called for a competitive and 'lean' defence industrial base which delivers long term value for money and provides the UK's Armed Forces with the equipment they need, and set out clearly the MOD's future equipment priorities.

Commenting on the successful implementation of the strategy, Lord Drayson said:

"The MoD and industry should be proud of the achievements made this year in delivering the vision in the DIS. There has been real progress in all key sectors including, most recently, the signature of the MoU that takes us into the next phase of the JSF programme; the exciting Taranis UAV contract; and the very positive news yesterday of a joint venture in the maritime sector between BAE Systems and VT. Industry has got the message that DIS is here to stay and is now starting to see the benefits. In addition, there have been significant structural changes within the MoD, not least the merger of the DLO and DPA, which will streamline the acquisition process.

"There is still work to be done in some areas but we now have the framework for success.

"My focus in 2007 will be on enshrining a culture in the MoD where staff are focused on continuous improvement in performance. I want to see staff motivated to take responsibility for project delivery, rewarded where they perform well, and held accountable where they perform badly.

"At the heart of all this is providing the right equipment to our Armed Forces who serve with such distinction on the front line. It is my number one priority to ensure this happens."

Defence Industry

## UK Armed Forces get new live-firing target service

The MoD has signed a contract with Qinetiq to supply high tech military target system for the next 20-years.

Under the contract Qinetiq will provide subsonic aerial targets for the MoD over the next two decades, helping ensure UK Armed Forces are trained and able to deal with a range of 21st century aerial threats.

Letting this contract marks a significant step forward towards the delivery of the CATS project. In line with the Defence Industrial Strategy it will prove a rationalised supplier base for the MoD and will produce savings in the order of 10% of the total cost over the 20 year life of the contract.

It is critical to Army's operational capability that Armed Forces test, evaluate and train operators for anti-air warfare systems, including the Royal Navy Sea Dart missile, Army High Velocity Missiles and RAF short and medium range air-to-air missiles.

In line with Defence Industrial Strategy this contract, worth over pound300M, will secure the long term support from industry for the provision of this key service. It also ensures that future plans for target usage are taken into account. Qinetiq have selected a major UK manufacturer, Meggitt Defence Systems, for three of the four target types they will be using.

The subsonic element of CATS will be provided under a Contractor Owned and Operated Service (COOS)

contract, which has been developed as a form of Public Private Partnership.

Defence Industry

## Trials of the Garant System Installed in the T-55AGM Battle Tank

The State-owned Enterprise Kharkiv Morozov Machine Building Design Bureau (Ukraine) carried out successful trials of the countermeasure system intended for suppressing radio-controlled explosive devices. The system had been developed by the Microtech Base Center for Critical Technologies (Ukraine) and is called Garant. When installed in a battle tank, it enables the vehicle crew to neutralize the radio-based control system of mines and other explosive devices by means of setting radio interference.

For the trials purposes the Garant system was installed in the upgraded T-55AGM tank, which also features a 125 mm smoothbore gun, bustle-mounted automatic loader, remote-controlled anti-aircraft machine gun, up-to-date fire control system with an override capability for the commander, additional passive armour protection, new-generation explosive reactive armour, 850 hp engine, automated vehicle movement control system comprising a steering wheel, optronic countermeasures system, and new fire suppression system.

Installation of the Garant system further enhances the protection level of the T-55AGM tank.

Defence Industry

## DRS Awarded $145m Contract to Produce Driver Vision Enhancer A-kits for U.S. Army Vehicles

DRS Technologies, Inc. announced that it has been awarded a new multi-year contract valued at approximately $145 million, including options, to produce Driver Vision Enhancer (DVE) A-Kits for installation on a wide range of frontline U.S. Army tactical wheeled and combat vehicles.

Increasing drivers' vision capability, survivability and mobility in hazardous, low-visibility conditions during the day or night, the DVE systems are supporting U.S. Army and Marine Corps units engaged in Operation Iraqi Freedom and Operation Enduring Freedom.

The company received $10 million in initial funding on the contract, which includes options for the first and second years of the program for product deliveries through fiscal 2008. Additional options extend the program through 2010. The contract was awarded to DRS by the U.S. Army's Communications-Electronics Life Cycle Management Command (CELCMC) Acquisition Center. For this award, DRS will provide DVE A-Kits and cabling. Production of the DVE A-Kits will be accomplished by the company's DRS Training & Control Systems unit. Under separately awarded contracts, the company also produces DVE B-Kits through its DRS Sensors & Targeting Systems unit, Optronics Division. The DVE systems utilize DRS's uncooled infrared technology and electronics developed by the unit's California Division.

The receipt of this new award solidifies the company's position as a prime contractor on the Driver Vision Enhancers program, having now secured contracts to produce both the A- and B-Kits, and provides a comprehensive solution for the U.S. Army. This new award reflects the continued priority placed by the Department of Defense on expanding the Army's ability to operate vehicles more effectively during night operations and under obscured battlefield conditions. The quality and reliability of DVEs support the military's objectives for increased mobility, survivability and situational awareness.

The DVE A-Kit is comprised of a pan/tilt mechanism and controls, structures, electrical cables and assemblies for mounting the DRS-produced DVE B-Kit. The company's DVE B-Kits provide military vehicle drivers with an unparalleled ability to see clearly at increased distances under severely degraded visual conditions for day or night operations. DVE A-Kits provide interchangeability of the B-kit within the family of tactical wheeled vehicles and within the family of combat vehicles.

Future Technologies

## Star-P uses Supercomputers in Support of Futuristic Military Vehicles

Interactive Supercomputing Inc.'s (ISC) Star-P software will help the U.S. Army and vehicle designers to evaluate the performance and reliability of next-generation military vehicles using supercomputers to dramatically accelerate simulation of the vehicles' operations.

ISC received a subcontract from the U.S. Army Tank Automotive Research, Development and Engineering Center (TARDEC) to transform its internally developed ground vehicle performance and reliability software to run on parallel computers. TARDEC is the nation's laboratory for advanced military ground systems and automotive technology.

The first phase of the project is to predict the reliability of the HMMWV M-1097, the Army's biggest "Humvee"-class vehicle designed to provide safe transport of troops, equipment and cargo in rugged, hostile environments. If successful, the research could

contribute to future development in robotic, plug-in electric and other advanced vehicle combat systems.

Until now, running full simulations of vehicle computer models in serial mode has taken too long to be fully utilized in the acquisition process, even when running on state-of-the-art serial hardware. TARDEC hopes to cut the time to perform computionationally intensive simulations by orders of magnitude with Star-P.

U.S. Army performance and reliability simulations of ground vehicles are run many times with a wide range of parameters, and a wide range of operational conditions, which often takes more time to compute than they can afford to wait for. Serial computer runs are not the answer. Making parallelization easy for the typical analyst is essential. Army needed a solution to convert existing serial code into parallel code quickly and easily. If successful, Star-P will enable TARDEC users who are unfamiliar with parallel computing to speed up very large simulations, without having to re-program their models.

Star-P is an interactive parallel computing platform that will enable TARDEC scientists to use their existing serial models developed in C or FORTRAN languages, automatically parallelizing the code run on parallel servers or clusters. Star-P lets users continue to work with their preferred tools, languages and desktop environments, shielding them from the programming complexities of parallel systems.

Contracts

## Patria AMV 8x8 vehicle and Patria Nemo mortar system agreements with Slovenia

The Slovenian Ministry of Defence has signed agreements with Rotis and Patria covering 135 Patria AMV 8x8 vehicles as well as Patria Nemo 120 mm single-barrel mortars to the Slovenian Army.

Patria's New Mortar system Patria Nemo launched in June 2006 now records its first international business deal. Both products represent the newest technology on the market and offer unique protection and performance. Production will gradually be transferred to Slovenia in 2007 and 2008. Together with Patria and Rotis, Gorenje will also be involved in the production.
The value of the agreements is EUR 278 million.

Patria will produce the vehicle and the mortars through direct participation of local partners. In addition, their offset agreements will bring great benefits to the Slovenian economy as a whole. Patria AMV 8x8 vehicle is the winner of several army field tests in different countries and the first of its kind in the world with the unique level of mine protection certified by South African authorities. Patria Nemo, the newest member in Patria's mortar system family was launched in June 2006. Since then, not only Slovenia but also other countries have recognised the superiority of this mortar system and the company foresees bright future prospects.

Rotis will with Slovenian industry - that is with those companies that showed interest - conduct the production of elements and major components. Together Patria will, as offered by the offer, conduct the involvement of Slovenian industry in the share of 30% of the deal value. For the rest of 70% they would realize offset, that is export of Slovenian products and services to the world and in that way for many Slovenian companies open the door for placement on new markets, new products and acquiring new technological knowledge.

Contracts

## Armor Holdings Receives $16 M Order for FMTV Program

Armor Holdings, Inc., a leading manufacturer and distributor of military vehicles, vehicle armor systems and life safety and survivability systems serving military, law enforcement, homeland security and commercial markets, announced today the receipt of a $16 million order for the Family of Medium Tactical Vehicle (FMTV) program from the U.S. Army Tank-automotive and Armaments Command (TACOM).

The Company stated that the new order is issued under the existing multi-year FMTV production contract for purchase of certain FMTV accessories, such as additional air conditioning units for specialized vehicle models. Work will be completed in 2007 and 2008 by the Aerospace & Defense Group, Tactical Vehicle Systems Division at its facilities located in Sealy, Texas.

Contracts

## Stork and its partners receive the Boxer series production contract

In the Bernardkazerne in Amersfoort, the Netherlands, the contract for series deliveries of the Boxer Multi-Role Armoured Vehicle to the Netherlands and German armed forces was signed. Total value for Stork EUR 0,5 billion.

The Boxer is a multi-role 'workhorse' which in the

Netherlands will replace the YPR and M577 vehicles. The Netherlands army will use the Boxer in 5 different versions: an ambulance vehicle, command post, engineer vehicle, and two types of cargo vehicles.

The series production contract for the 272 vehicles for Germany and the 200 vehicles for the Netherlands represents a total value of EUR 1,2 billion out of which Stork will receive EUR 0,5 billion in the period 2008 to 2016. Up to 70% of Stork's turnover will be subcontracted.

The contract for Stork encompasses a continued design for 2 new Boxer versions, the series production of 200 Boxer vehicles in 5 versions and an initial in-service support package. The Boxer represents the new generation of 8x8 all terrain armoured utility vehicles. The concept of a drive module and an exchangeable mission module makes it a flexible military vehicle for a large range of assignments, providing the highest protection of its class.

The Boxer is designed to ensure maximum strategic and tactical deployability in a wide range of operational scenarios, and is the result of balancing the key military requirements of protection, mobility, payload and weight. The Boxer is able to operate in both high intensity conflicts and in rapid reaction peace support and humanitarian operations worldwide, offering improved capabilities and higher levels of performance than other vehicles on the market. The vehicle provides state of the art protection against landmines and has adaptable modular armour to defeat current and future threats in order to offer the highest protection for our soldiers.

The programme is managed by the multinational defence acquisition organisation OCCAR that was also in charge for the management of the development of the Boxer. The industrial contract partner is ARTEC GmbH - acting on behalf of the consortium formed by Kraus-Maffei Wegmann (36 %), Rheinmetall Landsysteme (14 %) and Stork PWV (50 %).

Manufacturing of the vehicles will take place in both countries.

Deliveries of the vehicles will start in 2009 and extend for seven years.

The Boxer is designed for an in-service lifetime of some 30 years.

Contracts

## Saab receive first major defence order from Spain

Saab Microwave Systems has signed a contract with the Spanish army for ARTHUR Weapon Locating radars, a training simulator and logistics. The order is worth 59 M EUR. The order confirms Saab's position as a world leader within weapon locating and is a breakthrough on the Spanish market.

This is Saab's first major deal with the Spanish Defence Authorities and a real milestone. This order from an EU and NATO country highlights the world leading position Saab has within weapon locating. Spain is a very competent customer who has chosen ARTHUR after a thorough evaluation of the entire system's abilities, for example technical performance, user-friendliness, reliability and mobility.

The deal is entered with Saab Microwave Systems AS in Norway who will manage the project and deliver the systems to the Spanish army. The project will be run in close collaboration with Saab Microwave Systems in Sweden.

There will also be participants from Spanish industry. Delivery starts at the end of 2007 and the last system is calculated to be delivered in June 2009.

ARTHUR is developed to locate hostile artillery. The radar has a total range of up to 40 km and is able to detect targets, the size of a two Euro coin. Within a few seconds the system informs of both launch positions and point of impact. ARTHUR constitutes dramatically improved protection for threatened forces and areas/buildings in different peace-keeping deployments.

Norway and Sweden have developed ARTHUR in collaboration. In addition to Norway and Sweden, the system has for example been purchased by Denmark, United Kingdom, Greece, and the Czech Republic. The system has also been leased to Canada, United Kingdom and Italy.

Defence Industry

## Rheinmetall to supply German Bundeswehr with new command and control system

German government has contracted with Rheinmetall Defence AG of Dusseldorf to supply major units of the Bundeswehr with a new state-of-the-art command control and information system.

For Rheinmetall, the order represents volume of

around EUR170 million. It also underscores the company's cutting edge role as a technological pacesetter in the process of modernizing our ground forces.

The working group awarded with the contract, "FuInfoSys Heer", in which Rheinmetall holds a 50% stake, will progressively equip some 1,600 armoured and non-armoured vehicles with the new technology by 2011. ("FuInfoSys Heer" stands for "Army Command Control and Information System".) The programme is thus set to transform a wide array of German Army vehicles into mobile command and control elements.

Apart from the procurement and integration of command and control equipment, the "FuInfoSys Heer" package encompasses a full range of logistics, documentation and training services.

For the Bundeswehr, the system represents a major step in the direction of network centric warfare. In a global context, too, it sets new standards. The decision to introduce this system takes into account the expanded operational spectrum of our armed forces as well as the new imperatives of international crisis management.

The new command and control system enables the networking of multiple vehicles taking part in a mission; it also links these vehicles to the tactical operations centre. This means that relevant mission and navigation data can be exchanged in near real time with higher echelon command elements as well as within the given formation.

Whereas tactical communication was once limited to voice radio, the new system features a digital situation map function, for example, which enables units to monitor the unfolding situation in their area of operations on their computer displays.

Combat and combat support vehicles such as the Wolf, Wiesel, Bv206 and various command post vehicles will be outfitted with state-of-the-art information and communications equipment specially ruggedized for battlefield conditions. In addition, the command post vehicles will be equipped with NBC protection, air conditioning components and power supply systems.

Defence Industry

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